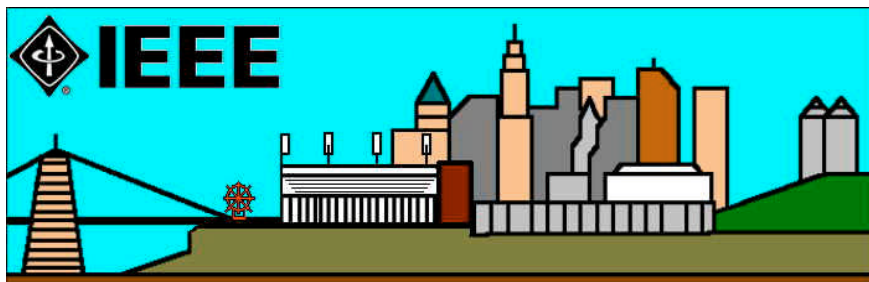


IEEE CINCINNATI
SECTION
NEWSLETTER
MARCH 2007



MARCH MEETING

Using R for System Performance Analysis

DATE: Thursday, March 22, 2007

PLACE : Raffel's – 10160 Reading Road (see below for directions)

TIME : 5:30 p.m. to 6:00 p.m. - Social Time
6:00 p.m. to 7:00 p.m. - Dinner
7:00 p.m. to 8:30 p.m. - Presentation

COST FOR DINNER: \$10.00 per person (with advanced reservation - see below)
\$15.00 per person (at the door)

NOTE: DINNERS ARE ALWAYS OPTIONAL - YOU MAY ATTEND THE PROGRAM ONLY.

MENU SELECTIONS: Chicken Cordon Blue, Creole with Shrimp and Scallops, Beef Stroganoff, Parsley Buttered Potatos, Broccoli with Cheese, Tossed Salad, Dinner Rolls and Butter, Coffee, Tea, Iced Tea, Soft Drinks. There is also a bar available for the purchase of alcoholic drinks.

LOCATION: Raffel's is located at 10160 Reading Road, south of Glendale-Milford Road on the east side of Reading. Take I-75 to the Glendale-Milford Rd. Exit, go east on Glendale-Milford Road approximately 3/4 of a mile to Reading Rd. and turn right on Reading.

RESERVATIONS: Please call the Cincinnati Section Voice Mailbox at **513-629-9380**, by **Noon, Tuesday, March 20, 2007** if you plan to attend. Please leave your Name, IEEE Member Number, and a daytime telephone number. You can also make a reservation by e-mailing our Arrangements Chair, Ron Harbaugh, at ron.harbaugh@ieee.org.

PE CREDITS: Depending on the subject matter, attendance at IEEE Cincinnati Section Meetings now qualifies the attendee for Professional Development Hours towards renewal of Professional Engineers Licenses. Required documentation will be available following the meeting! The Section Meetings also provide a great opportunity to network with fellow engineers in the area.

ABOUT THE MEETING: What is R? "R" is the GNU implementation of the "S" programming language. R is an environment for the calculation, manipulation, and presentation of data. It has a set of operators that work on vectors and matrices directly so that the analyst does not have to write iterative processing routines. It is a complete programming environment that can support the most complex data analysis requirements and provides

publication quality graphical output. James Holtman will present an overview of R followed by examples of how it is used to analyze system performance data.

ABOUT THE SPEAKER: Although he is not a rocket scientist, James Holtman has shot down a few ballistic missiles in his career. He was a coop student at White Sands Missile range for 5 years. He also worked at Bell Labs for 23 years, being named a Bell Labs Fellow, and worked for Convergys for 14 years, where he was an internal consultant assisting other projects within Convergys on architecture and performance issues. He did his undergraduate work (BSEE) at New Mexico State University and graduate work (MSEE/CS) at Berkeley.

His career spans COBOL, PL/I and IMS on the mainframes, building a real-time operating system for the Safeguard Antiballistic Missile system, hacking the UNIX kernel, operational support systems for AT&T, and billing and customer care systems for the telecommunications industry. He developed the architecture review process that was used throughout Bells Labs and has reviewed over 200 projects in his career looking at their architecture and performance requirements.

He also teaches a course on "Working the Numbers", which is his legacy to the next generation so that they do not forget that performance is an important part of the design and architecture of a solution.

CHAIR'S MESSAGE

by Brian Resnick, Section Chair

The Section thanks Harris Corporation, especially Mr. John Hall, the presenter, Mr. John Ferman, our host, and the tour guides Mr. Randy Restle, Mr. Geoff Mendenhall and Mr. Paul Mizwicki, for a terrific meeting. Mr. Hall's presentation of "The Worldwide Digital Transition" was very interesting and well received. The tour of the facility, that included a look at lead-edge technologies in TV and radio transmission, was fascinating. We also thank Harris for the refreshments.

The February 28 meeting of the Student Branch at UC's College of Engineering featured a presentation by Bradley Huhn of the Software Freedom Law Center.

The Section celebrated Engineer's Week by hosting a family day event on Saturday February 25. Several families spent the day at the College of Applied Science playing with robots, learning to program, solving problems, and having a good time being geeks. Plan to attend next year – inspire your children.

This month we meet at Raffel's on March 22 for a technical presentation by Mr. Jim Holtman entitled "Working the Numbers." Mr. Holtman will share methods and techniques for analyzing system software to determine its performance scalability. If you write software or manage those who do, this meeting should be of interest to you. Certificates for Professional Development Hours will be available at the meeting.

As a service to your fellow members, if you know of any job openings, please share them during the introductions prior to the presentation. IEEE recognizes your contributions to engineering by offering different levels of membership. If you have been an engineer for at least ten years and have contributed significantly (managed a project, written a paper, received a patent, etc.), you should apply to become a Senior Member. This recognition costs you nothing but the time to fill out the paperwork. In return, you receive a \$25 coupon to IEEE and a very nice plaque, and you help the Section by increasing the funds we receive from IEEE. Please contact me for details.

See you at Raffel's on March 22.

MEMBERSHIP NEWS

NEW MEMBERS

The following individuals are IEEE members who are new to our Section:

Andrew J. Asman	Benjamin T. Hodson	Charles P. Malone
Joseph P. Berns	Michael A. Huntwork	Siddharth H. Mohan
Arvind A. Daya	Christopher M. Johnson	Sean Setter
Jonathan M. Farrell	Robert A. Kemerling	Eric L. Statzer
Heather R. Hall	Jason K. Kleinhenz	Scott Wymer

We wish to welcome these new members to the Cincinnati Section!!!

Scanning the Past: A History of Electrical Engineering from the Past

Submitted by Dick Reiman, Historian

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Mervin J. Kelly and Arthur L. Samuel:

Exploring Frequency Limits of the Vacuum Tube in the 1930's

Sixty years ago this month, the PROCEEDINGS OF THE INSTITUTE OF RADIO ENGINEERS (IRE) included a paper on the use of vacuum tubes at frequencies above 100 MHz. The paper was authored jointly by Mervin J. Kelly and Arthur L. Samuel, both employed at the Bell Telephone Laboratories. Kelly later headed the Bell Telephone Laboratories and was elected to the National Academy of Sciences. Samuel became well known for his contributions to the design and application of high-frequency electronic devices. Both men became Fellows of the AIEE and the IRE, predecessors of the IEEE.

In their November 1934 paper, Kelly and Samuel discussed the high-frequency performance and limitations of the negative-grid tube, the positive-grid or Barkhausen tube, and the split-anode magnetron. They noted that empirical knowledge was well ahead of theoretical, especially with regard to the positive-grid oscillator and the magnetron. They provided information on a number of experimental negative-grid tubes, one of which had produced an output 1 W at a frequency of 1200 MHz. These tubes had been specially designed to reduce the effect of electron transit time, interelectrode capacitance, and lead inductance. They mentioned that a spiral-grid Barkhausen tube could generate oscillations at frequencies as high as 3000 MHz while the split-anode magnetron had been found to produce a detectable output at 30,000 MHz. Kelly and Samuel observed that amplifiers had not managed to keep pace with oscillators in the "struggle toward higher and higher frequencies."

Mervin J. Kelly was born in Princeton, MO, in 1894 and received the B.S. degree from the Missouri School of Mines. He received the M.S. degree from the University of Kentucky in 1915 and the Ph.D. degree from the University of Chicago in 1918. At Chicago, he worked as a laboratory assistant to Robert A. Millikan. Shortly after receiving his doctorate, Kelly became a research physicist at Western Electric where he remained until 1925 when he joined the staff of the newly created Bell Telephone Laboratories. He conducted research on vacuum tubes and then became Director of vacuum-tube development from 1928 to 1934, presiding over development of extended-life tubes, high-power water-cooled tubes, and high-frequency tubes. He continued as a research administrator at the Laboratories, serving as Executive Vice- President from 1944 to 1951 and as

(Continued on Page 5)

ECE & CS Graduate Students Association
In collaboration with
IEEE Student Branch & Eta Kappa Nu, Tau Chapter

Organizes

ECECS Poster Symposium

April 6th 2007, 11am - 5 p.m.

**4th Floor Engineering Research Center &
427 ERC Auditorium**

Highlights

- **Graduate poster competition**
- **Under graduate poster exhibition**
- **Keynote address by distinguished guest**
 - **Talk by invited speaker**
- **Certificates to selected posters**
- **Best poster awards**

For more information:

Call 513-556-3025

or

Email: gsaadm@ececs.uc.edu

**UNIVERSITY OF
Cincinnati**



Mervin J. Kelly and Arthur L. Samuel:
Exploring Frequency Limits of the Vacuum Tube in the 1930's
(Continued from Page 3)

President of the Bell Laboratories from 1951 to 1958. In 1948 he established an in-house advanced training program which became known as "Kelly's College." Following his retirement in 1959, he did consulting work with NASA and IBM. He was the recipient of the John Fritz Medal awarded jointly by the AIEE and other engineering societies in 1959. The Mervin J. Kelly Award was established in 1959 and was awarded by the AIEE and later the IEEE until 1975. Kelly died in 1971 at age 77.

Arthur L. Samuel was born in Emporia, KS, in 1901 and received an undergraduate degree from the College of Emporia. He later earned the M.S. degree in electrical engineering at the Massachusetts Institute of Technology in 1926 and taught at MIT from 1926 to 1928. He joined the Bell Laboratories in 1928 where he worked until 1946. A paper on ultra-high-frequency vacuum tubes which he published in the PROCEEDINGS OF THE INSTITUTE OF RADIO ENGINEERS in October 1937 was awarded a prize as the best PROCEEDINGS paper that year. He taught electrical engineering and was director of a vacuum-tube research laboratory at the University of Illinois during 1946-1949. He then joined IBM where he worked as a research engineer and research advisor until 1961.

James E. Brittain
School of History, Technology, and Society
Georgia Institute of Technology

MARK YOUR CALENDARS
U. C.'s College of Applied Science TECH EXPO 2007
to be held WEDNESDAY, MAY 16!!!!



What is Tech Expo?

The **Tech Expo Technology and Engineering Exhibition** is a showcase for the senior projects done by about-to-graduate students from UC's College of Applied Science. The event actually began in the 1800's as a Grand Exposition featuring manufacturers and other industrial organizations. Now 20+ years old, the modern Tech Expo is considered the **premier annual event for the College**. Last year's event featured 120+ student exhibits, 25 business partners, and enjoyed a record 1,100 visitors, including representatives from several area high schools.

The featured senior student design projects are a wonderful mix of creative design, complex project management and eye-catching ingenuity, and represent **engineering and related disciplines** including Mechanical Engineering Technology, Electrical Engineering Technology, Architectural Engineering Technology, Computer Engineering Technology, Information Technology, Construction Management, and more.

What role does business and industry play in the event?

First and foremost – **we encourage our business partners, including our many co-op employers, to attend the event!** Tech Expo is free and open to the public. Our students benefit greatly from interacting with members of the business community.

Many of our co-op employers and other businesses provide judges for Tech Expo. These **judges offer valuable insights** for our students by critiquing the projects and providing the students with an opportunity to discuss their work.

Additionally, we welcome businesses and organizations to sponsor Tech Expo exhibits. **We welcome corporate displays** that show the innovative ways businesses use technology to be successful. Last year, our 20+ business exhibitors found participating to be a great way to **network** with UC faculty and alumni and to do some **informal recruiting** of some of the best College of Applied Science students!

Another partnership opportunity for businesses - teaming up with a student or group of students **to develop and sponsor a senior project**. Several businesses, primarily through the co-op program, have done this in the past. It is a great way for College of Applied Science seniors to work at solving real life problems while businesses get great ideas and hard work from talented students!

Outreach to Younger Students

An important initiative for the College of Applied Science is to **increase awareness of engineering and technology among elementary, middle and high school students**. Over the past two years, we have increased our efforts to have these younger students attend Tech Expo, and have invited several schools to exhibit and participate in engineering-based competitions during the event. This initiative benefits CAS through increased admissions, benefits businesses by developing a ‘pipeline’ of potential employees, and benefits young students, who are exposed to a variety of disciplines and careers.

In 2007, we plan to invite area high school students to be exposed to the **BEST Program, a joint partnership between UC’s College of Engineering and College of Applied Science**. This program is designed to get younger students excited about engineering through the use of robotics and other cutting-edge technologies.

What’s New at CAS?

- A new “Power Engineering” program, offered through the Electrical Engineering Technology department – we will be one of just a few such programs in the country
- A completely renovated Information Technology program
- Plans for a new Facilities Management program
- A new Construction Innovation Center, funded by a consortium of companies including contractors, law, consulting and architecture firms
- An Honors Program

And much more!

Just the Facts. . .

- ❑ Wednesday, May 16, 2007 – **note new date!**
- ❑ 10am – 4pm
- ❑ Duke Energy Center in downtown Cincinnati
- ❑ Scheduled events include a mid-day alumni/co-op employer networking reception and an awards ceremony recognizing top student projects
- ❑ Free and open to the public!
- ❑ For more information, contact Betsy Zelek at (513) 702-2732

College of Applied Science



TECH EXPO

Wednesday, May 16, 2007

Duke Energy Center

(Convention Center – downtown Cincinnati)

contact:

Betsy Zelek

513-702-2732

bzms@zoomtown.com

UNIVERSITY OF
Cincinnati

TECH EXPO 2007

***Become a
Sponsor***

EDISON

\$2500

- Be featured as the sponsor of a community of student and business exhibits in your field or discipline. As a sponsor, your 10' x 10' exhibit booth will be placed in a premium location and will feature special signage and draping. *This benefit will be offered to a very limited number of companies and organizations!*
- Sponsor a departmental award named for your business — award will honor a top student display at Tech Expo
- Receive a complimentary booth at the popular CAS Job Fair, held in 2007-08 — a \$250 value that provides access to hundreds of students and alumni!
- Receive special recognition for your company at the networking reception at Tech Expo 2007
- Assist in selection of the *Industry Partners Commendation Award* for the best senior project display
- Have a photo of your Expo booth *plus* a special listing as an Edison Community Sponsor in the 2007-08 edition of *Tech Record* (alumni publication — distribution 10,000)
- Special listing as an Edison Community Sponsor in the 2007 edition of the Tech Expo Program

RIEVESCHL

\$1500

- Sponsor a departmental award named for your business — award will honor a top student display at Tech Expo 2007
- Receive a complimentary booth at the popular CAS Job Fair, held in 2007-08 — a \$250 value that provides access to hundreds of students and alumni!
- Assist in selection of the *Industry Partners Commendation Award* for the best senior project display
- 10' x 10' display booth during Tech Expo 2007
- Corporate listing in 2007-08 edition of *Tech Record* (alumni publication — distribution 10,000)
- Corporate Listing in 2007 edition of the Tech Expo Program

PARKER

\$750

- 10' x 10' display booth during Tech Expo 2007
- Corporate Listing in 2007-08 edition of *Tech Record* (alumni publication — distribution 10,000)
- Corporate Listing in 2007 edition of the Tech Expo Program

Your sponsorship is tax deductible to the fullest extent of the law. Checks should be made payable to the University of Cincinnati Foundation.

NEW FOR '07!

INNOVATOR LEVEL A full year of benefits for your company. Gain exposure to CAS students and faculty and valuable recognition as a leader in the technology workplace while supporting this premier event, TECH EXPO. Contact us for more information.

TECH EXPO 2007

Join us as a Sponsor Today!
Please note - Date Change

Tech Expo, our region's premier technology exposition, is now scheduled for Wednesday, May 16 at the Duke Energy Center. Mark your calendars and plan to join us for this exciting event.

Sponsor and Exhibitor Opportunities are available now!

⇒ Gain exposure to College of Applied Science students and see an amazing array of senior design projects. ⇒ Earn valuable recognition as a leader in the technology workplace while you support the College and its programs. ⇒ Interact with middle and high school students who are considering engineering, science and technology fields of study. ⇒ Network with UC faculty and administrators who are helping to shape tomorrow's technology workforce.

For more information, contact Betsy Zelek at (513) 702-2732 or by email at bzms@zoomtown.com

IEEE NEWS

THE LATEST ISSUE OF IEEE'S "THE INSTITUTE" IS NOW AVAILABLE AT
<http://www.ieee.org/theinstitute>

Included in this issue:

- EWeek Programs Grow: The idea for the U.S. National Engineers Week (EWeek) Future City Competition germinated back in 1992. Little did the planners in IEEE-USA's Washington office realize that 15 years later, the competition to design a city in software would blossom into one of the week's most popular activities. Read about the competition and everything else taking place during EWeek, being held from 18 to 24 February, at <http://bmsmail3.ieee.org:80/u/5451/04824637>

- IEEE Membership? What's in It for You: From gaining a competitive edge in your profession to getting quick access to hundreds of thousands of top research articles, there are many benefits to being an IEEE member. To learn more, visit <http://bmsmail3.ieee.org:80/u/5452/04824637>
 - Marketplace of Ideas: Virtual Versus Real Communities: A study in November by the Annenberg School Center for the Digital Future at the University of Southern California found that virtual communities such as MySpace are becoming as important to Internet users as their real-world acquaintances. Forty-three percent of Internet users who are members of online communities say they "feel as strongly" about their virtual friends as they do about their real-life friends. Do you think virtual relationships can be as meaningful as real-life relationships, or is interaction in the real world key for relationships to work? Weigh in institute@ieee.org
- And read responses to November's question on whether you think fining Australian spammers millions of dollars was a just punishment. Answers range from saying it's a good start, to asking for spammers to be banned altogether from having e-mail accounts. See what members had to say at <http://bmsmail3.ieee.org:80/u/5455/04824637>
- Eight Ways to Project Success: In today's competitive workplace, it's important to be the best project manager you can be, says IEEE Member Margaretha Eriksson, founder of Irbis Konsult, an engineering management consulting firm in Stockholm. Eriksson outlined eight ways to be a successful project manager in a Webinar sponsored by IEEE Graduates of the Last Decade. To learn more, visit <http://bmsmail3.ieee.org:80/u/5456/04824637>
 - Enter IEEE Spectrum's Do-It-Yourself Contest: Do you have a terrific electronics project you've built at home? If so, IEEE Spectrum wants to hear from you. IEEE Spectrum and Make magazines are joining forces to call attention to the coolest and cleverest do-it-yourself projects. If you've conceived and built something that you'd like to share with more than a million people--the combined readerships of Spectrum and Make--then let them know about it. For more information go to <http://bmsmail3.ieee.org:80/u/5457/04824637> . If you have questions about how or what to enter, send an e-mail to Spectrum's editor, Susan Hassler at s.hassler@ieee.org
 - Two Past IEEE Leaders Die: John Guarrera, 1974 IEEE President, died on 7 December in El Cajon, Calif., at the age of 82. See <http://bmsmail3.ieee.org:80/u/5459/04824637>. Look for an expanded obituary in The Institute's March print issue. In the online February issue of The Institute, read about the life of past Region 9 Director (Latin America) Eduardo Bonzi-Correa, who died on 22 October 2006. See <http://bmsmail3.ieee.org:80/u/5460/04824637>
 - Wireless Communications and World War II: In "Crystal Clear: The Struggle for Reliable Communications Technology in World War II," a new book from Wiley-IEEE Press, author Richard J. Thompson Jr. relates the story of the quartz crystal oscillator--from its early days as a curiosity for amateur radio enthusiasts to its use by the U.S. armed forces and their allies in World War II. Read on at <http://bmsmail3.ieee.org:80/u/5462/04824637>
 - History Center Adds 75 Oral Histories: If you want to know what Robert Noyce had to say about inventing the integrated circuit or read about how Wilson Greatbatch helped develop the implanted cardiac pacemaker, check out their oral histories on the IEEE History Center Web site. These are just two of 75 new oral history transcripts added recently. Read more at <http://bmsmail3.ieee.org:80/u/5464/04824637>

- French Research Institute Posts Openings on IEEE Job Site: The French National Institute for Research in Computer Science and Control, known as INRIA, has begun posting jobs on the IEEE Job Site. INRIA offers over 400 positions on the cutting edge of such fields as networks, software security, complex systems, simulation and virtual reality, and modeling living systems. For information about INRIA, visit <http://bmsmail3.ieee.org:80/u/5466/04824637>. And use the keyword INRIA to search the IEEE Job Site at <http://bmsmail3.ieee.org:80/u/5467/04824637>
- IEEE-USA Beefs Up Public Awareness Programs: To boost the public's understanding of the role played by engineers, IEEE-USA has more than doubled its public awareness budget this year. Find out more at <http://bmsmail3.ieee.org:80/u/5569/04824637>
- New View Breathes Life Into Old Meeting: Sometimes it takes an organizer with new ideas and lots of enthusiasm to breathe life into a faltering program. That's what happened when IEEE Student Member Mohamed Adel Shahat, chair of the IEEE Student Branch at Shoubra Faculty of Engineering at Egypt's Benha University, took on the task of organizing the annual meeting of the country's student branches. Learn how he did it at <http://bmsmail3.ieee.org:80/u/5570/04824637>
- Nick Patterson: Deciphering Life's Secret Code: After spending much of his career as a mathematician doing classified cryptographic work for both the British and U.S. governments, and then applying his mathematical insights to the stock market, IEEE Senior Member Nick Patterson is trying his hand at one of the great challenges: decoding the human genome. Read more about his work at <http://bmsmail3.ieee.org:80/u/5571/04824637>
- Luiz de Queiroz Orsini: 4000 EE Disciples--and Counting: It's been 60 years since 84-year-old IEEE Fellow Luiz de Queiroz Orsini began teaching at the University of Sao Paulo, Brazil's foremost educational institution. In those six decades, Orsini has affected generations of Brazil's EEs, creating new courses and laboratories, preparing original teaching material in Portuguese, and introducing computers as a teaching tool. Learn more at <http://bmsmail3.ieee.org:80/u/5573/04824637>
- Student, GOLD Groups Make Good Match: The IEEE Student Branch at the Massachusetts Institute of Technology and the IEEE Graduates of the Last Decade group in Boston shared the same goal last year: improving the relationship between the IEEE and its student members. That's why the two groups made a perfect match for a joint seminar on entrepreneurship. For more information, go to <http://bmsmail3.ieee.org:80/u/5574/04824637>
- Giving Processors More to Process: A lot less information was stored back when words were man's only indexable form of information. Today, with pictures, video, and sound in the mix, keeping up with all the information-storage technologies is a challenge. That's the reason for holding the 32nd annual International Conference on Acoustics, Speech, and Signal Processing, taking place from 15 to 20 April in Honolulu. Learn more at <http://bmsmail3.ieee.org:80/u/5575/04824637>
- IEEE Computer Society Seeks Nominations for Anniversary Award: The deadline for nominating someone for the Computer Society's 60th anniversary award is 15 March. The award will go to one or more individuals responsible for the single most important computer science and engineering contribution over the past century. For more information and to access nominating materials, visit <http://bmsmail3.ieee.org:80/u/5577/04824637>

- IEEE Job Site to Exhibit at CeBIT: The IEEE Job Site will have an exhibit booth at the 2007 World Trade Fair for Information and Communications Technology, better known as CeBIT, from 15 to 21 March in Hannover, Germany. Employers who visit the booth--in hall 006, stand E35--in the fair's Job & Career Market will be offered a free job posting. The IEEE Job Site is a major benefit of membership for those looking to change jobs or to see what benefits employers are offering to professionals with similar jobs. For more information, e-mail the IEEE Job Site at jobsitecandidate@ieee.org
- IEEE Spectrum Online Highlights World's First Quantum Computer: IEEE Spectrum Online features a report on a Vancouver start-up that says it has demonstrated the world's first commercially viable quantum computer even though quantum computers are commonly considered a research affair that's as much as 20 years away from usefulness. D-Wave Systems unveiled its machine at the Computer History Museum in Mountain View, Calif. Read more at: <http://bmsmail3.ieee.org:80/u/5581/04824637>

The IEEE Cincinnati Section Executive Committee **Member Names and Phone Numbers**

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